

# Method for Tracking Core-Contributed Publications

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Accurately tracking core-contributed publications is an important and often difficult task. Many core laboratories are supported by programmatic grants (such as Cancer Center Support Grant and Clinical Translational Science Awards) or generate data with instruments funded through S10, Major Research Instrumentation, or other granting mechanisms. Core laboratories provide their research communities with state-of-the-art instrumentation and expertise, elevating research. It is crucial to demonstrate the specific projects that have benefited from core services and expertise. We discuss here the method we developed for tracking core contributed publications.

**KEY WORDS:** grants, laboratories, funding, database, LIMS, authorship and acknowledgment policies, accountability

## INTRODUCTION

Obtaining and maintaining funding for core laboratories ensures that state-of-the-art instrumentation and expertise are widely available to the research communities that cores serve. Core funding can be obtained through instrument or program-granting mechanisms and through institutional support; keeping researchers' costs as low as possible and enabling research. Reciprocally, cores that are productive and produce high-quality data support and facilitate programmatic grant renewals.

Accountability, measured in core-contributed publications, numbers of researchers served, and productivity, may be the most important indicator of quality for cores. Institutional support garnered is another indicator of core quality. Appropriate acknowledgments and authorships are critical for the accountability of cores and are important components of the framework for managing cores within a research enterprise.<sup>1,2</sup>

Whereas all research or data generated on core instruments should be acknowledged as such, authorships have a specific set of guidelines. Authorship should be granted when core staff designs experiments and performs data analysis or interpretation of data, and in cases where data are generated, core staff should have the opportunity to review pertinent sections and should give final approval to

the manuscript wording and conclusions of those sections before publication.<sup>3,4</sup>

Laboratory information management systems (LIMS) have helped cores overcome the challenges associated with certain types of data management, such as managing experimental workflows and accompanying large datasets, scheduling instruments, billing systems, inventories, instrument use, performance, and even environmental metrics, such as room temperature and humidity.<sup>5,6</sup> However, tracking core-contributed publications and the ability to generate data on appropriately cited work have been difficult. Here, we present our method for tracking core-contributed publications.

## MATERIALS AND METHODS

### PubCrawler

PubCrawler, a free internet-based service developed by the Wolfe Lab (University of Dublin, Ireland) in 1999, provides information about new publications in sequence and literature databases through customized user queries.<sup>7</sup> After registering, the user can define queries based on pull-down search fields and Boolean logic operators. The service alerts the user at user defined time-points to the latest updates when they become available in PubMed and GenBank.<sup>8</sup> This service is known as a "selective dissemination service", and the results of a query can be exported to the reference manager of your choice for creating bibliographies in documents. EndNote supplies over 5000 bibliographic styles, each required by leading journals, and each style can be fully customized to any requirements not provided. In this method, we use EndNote version X4.<sup>9</sup>

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Specific permission was obtained from PubCrawler and EndNote (Thomson Reuters) for publication.

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## A. Define Parameters

**PubCrawler -**  
an Update Alerting Service for PubMed and GenBank

Overview for user 'carolcurchoe' (log in as different user)

**Results:**  
The latest results contain 112 new hits. They were generated on Thu Nov 3 01:57:30 2011 (Eire). [Show results!] [Start queries!]

**Queries:**  
7 queries are defined. Last modified on Sat Oct 22 19:29:59 2011 (Eire). [Change queries!]

**Schedule:**  
Queries are carried out the 1st week of the month on Thursdays. [Change schedule!]

**Mail and results options:**  
Results are stored in Summary format. A notification is sent to Carol.Curchoe@nyumc.org only when new hits were found. [Change options!]

**Parameters:**  
Database entries from the last 180 days are searched. The 800 most recent hits are retrieved, of which 100 entries are shown in full. Any excess number of hits can be retrieved through a link combining up to 400 items. Previous hits will be listed for 10 days. [Change parameters!]

**Cookies:**  
Cookies for easy access are not set. [Set cookies!]

**Password:**  
Click the button to change your password. [Change password!]

[Refresh] [Log out]

B. Core user names are the queries; Last First (no comma)  
Use OR between names; AND for affiliation

**Modification of PubMed query:**

Alias: [Example Query] (replace with **descriptive** term)

search term	search field	connector
Gardner Lawrence	Author	OR
Osman Iman	Author	OR
Zagzag David	Author	AND
New York University	Affiliation	AND
		AND

## C. Publications are automatically emailed

PubCrawler Results for carolcurchoe

Thursday 3 Nov 2011

Index of PubCrawler results:

- Query Alias 7: 1 new hit today
- Query Alias 3: 99 new hits today
- Query Alias 4: 4 new hits today
- Query Alias 6: 1 new hit today
- Query Alias 5: no new hits today
- Query Alias 2: 6 new hits today
- Query Alias 8: 1 new hit today

[retrieval] [query box] [disclaimer and copyright]

Results for 'Query Alias 7' at PubMed

[next] [top]

22 hits after first visit for 'Kramer Elisba [Author] OR Michaelson Richard [Author] OR Nonaka Daisuke [Author] OR Novik Yelena [Author] OR Papish Steven [Author] OR Patel Kapel [Author] OR Scher Howard [Author] OR Shapiro Geoffrey [Author] OR Tepeman Lewis [Author] OR Torres Victor [Author] OR Tung Nadine [Author] OR Vahdat Linda [Author] OR Versea Linda [Author] OR Willett Walter [Author] OR Wilson Lynn [Author] OR Winitzer Israel [Author] OR Yates Dulman Robin [Author] OR Zakowski Maureen [Author] OR Reinberg Danny [Author] OR Yelon Deborah [Author] OR Browec J [Author] OR Hubbard E Jane Albert [Author] OR Huang Tony [Author] OR Alon Tamar [Author] OR Basilico Claudio [Author] OR Bekker Alex [Author] OR Blanks Stephanie [Author] OR Bogart Bruce [Author] OR Bosland Maarten [Author] OR Cecel Jeffrey [Author] OR Chen Lung-Chi [Author] OR Dai Wei [Author] OR Darwin Heran [Author] OR Durbin Joan [Author] OR Erlebacher Adrian [Author] OR Faldel Ahmed [Author] OR Greco Alba [Author] OR Grunig Gabriele [Author] OR Ito Mayumi [Author] OR Ivanova Alla [Author] OR Kong Xiangpeng [Author] OR Lalwani Anil [Author] OR Li Zongdor [Author] OR Liu Chuanju [Author] OR Maass Karen [Author] OR Munger John [Author] OR Newcomb Elizabeth [Author] OR O'Connor Thomas [Author] OR Pei Zhiheng [Author] OR Ron David [Author] OR Russell Stewart [Author] OR Ryoo Hyung Don [Author] OR Samuels James [Author] OR Schnabel Freya [Author] OR Silvera Debbie [Author] OR Skok Jane [Author] OR Tam Moon-Shong [Author] OR Vanderberg Jerome [Author] OR Wilson Elaine [Author] OR Wirgin Isaac [Author] OR Wu Lingjun [Author] AND New York University [Affiliation]'

Toggle new results (1 item in total):

☒ 1: Salm S, Burger PE, Wilson EL. TGF- $\beta$  and stem cell factor regulate cell proliferation in the proximal stem cell niche. Prostate. 2011 Oct 24; [Epub ahead of print] PMID: 22024978 [PubMed - as supplied by publisher] [Related Articles]

Retrieval of selected items

This feature requires Javascript to be activated in your browser.

☒ (un)select all boxes [toggle]

Select database: [PubMed]

Select format: [Abstract]

[Retrieve]

FIGURE 1

Setting up the query in PubCrawler and retrieving publications. (A) Define parameters. (B) Core user names are the queries: Last First (no comma). (C) Publications are automatically emailed.

## EndNote 4

EndNote, a product of Thomson Reuters (Carlsbad, CA, USA), is a reference-management software that allows users to search online bibliographic databases, organize references, and create bibliographies in a doc-

ument. Many bibliographic databases, such as Ovid, PubMed, Medline, and Web of Science allow users to export references directly to EndNote. Full text files can be added to each reference and fully searched for key terms. Newer versions of EndNote are collaborative

## D. Export publication in the Medline format to a .txt file

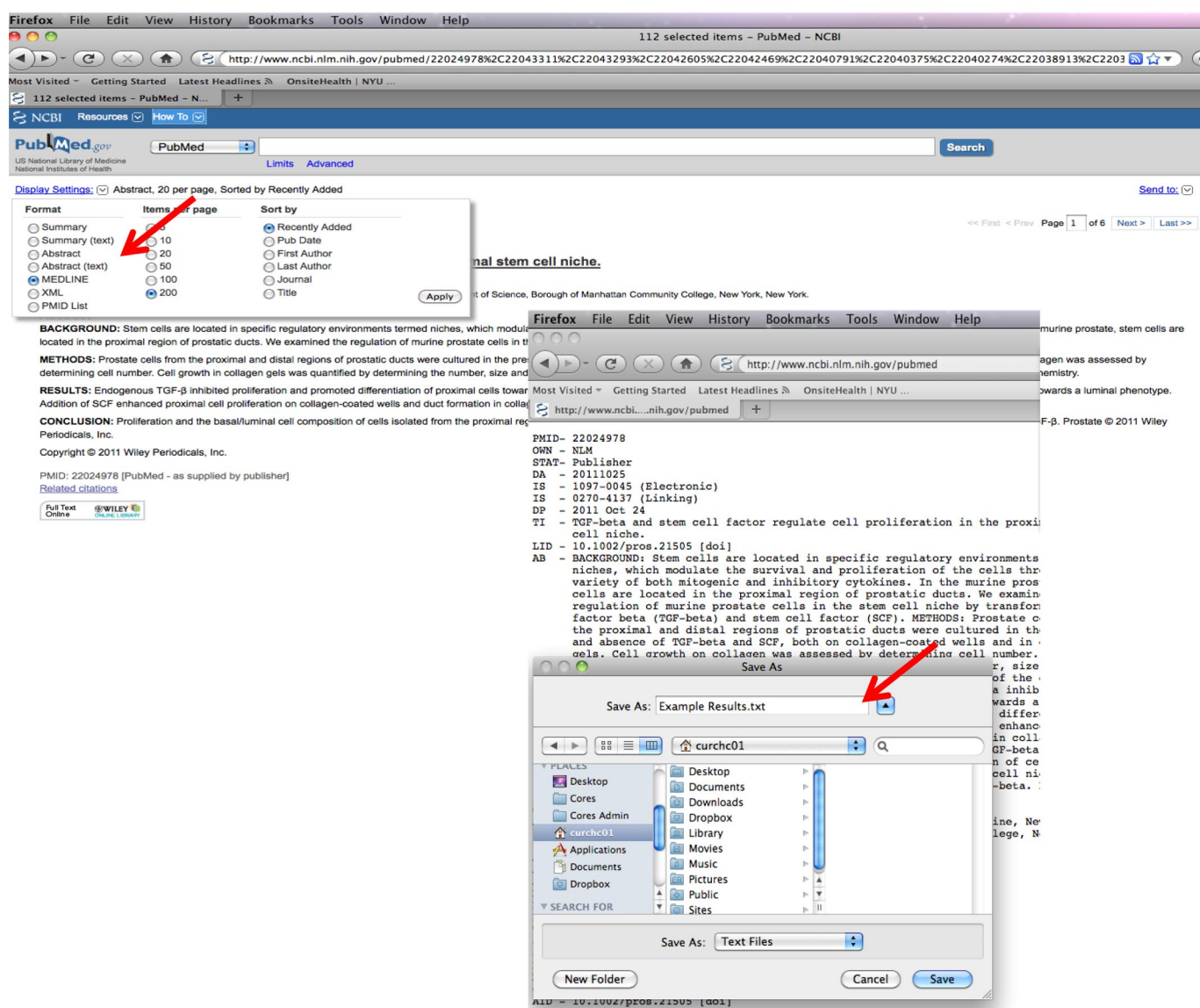


FIGURE 1—(continued)

(D) Export publication in the Medline format to a ".txt" file.

tools with web-based functionality that allow users to share libraries and transfer references to each other via a web-based interface.<sup>10,11</sup>

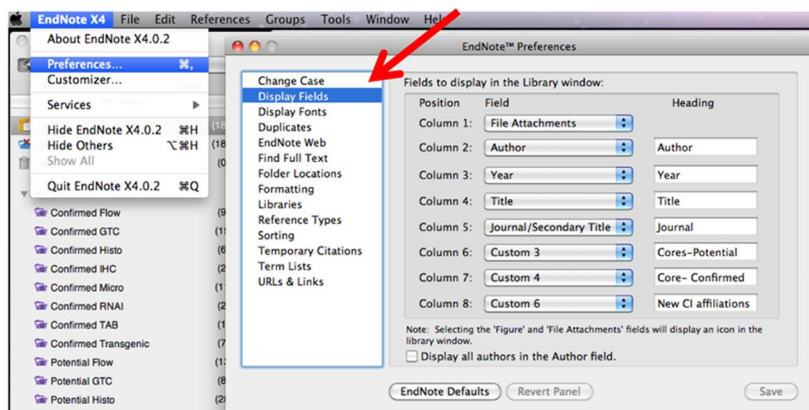
### Method

Currently, each core user signs an acknowledgment and authorship policy form, which is stored centrally. We have identified this as an important step in educating the user base to appropriately acknowledge cores and consider authorship where appropriate. The user can access acknowledgment statements on each of the core's webpages listing the grants that support each core. Secondly, we track user

publications. We use PubCrawler (Fig. 1A) and define our queries by the core users or names of principal investigators (PIs; Fig. 1B). We automatically obtain results on a monthly basis (Fig. 1C) from PubCrawler, which are downloaded as a .txt file in the Medline format (Fig. 1D) to be imported into EndNote X4. We customize a number of features in EndNote to sort and categorize publications by core for potential and confirmed core use, including the "Display Fields" and "Smart Groups" (Fig. 2A and B). We then import the full-text PDF files into EndNote (Fig. 2C) and search "Any Field + PDF" with a list of keywords that includes instrument make and model, services, data types,



## A. Name Display Fields in preferences



## B. Create Smart Groups

Smart Groups automatically sort publications that have been tagged. Smart group can also be made for each PI.

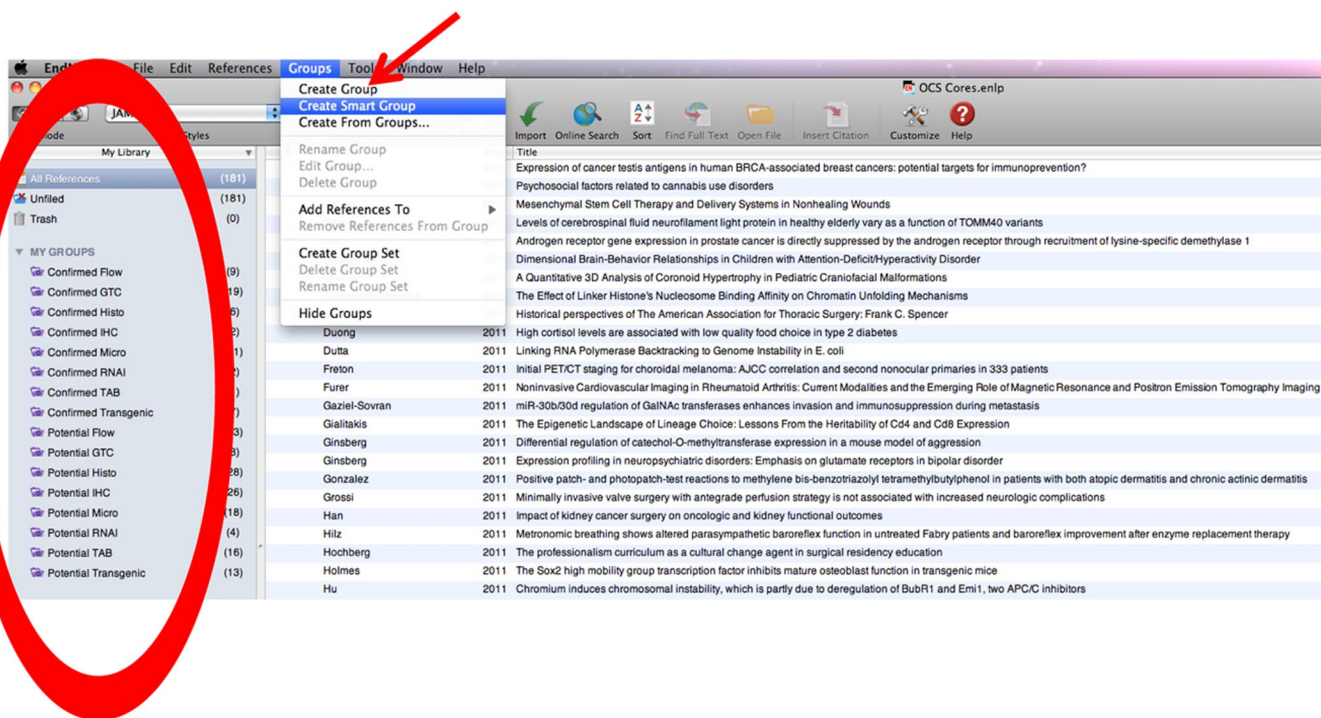


FIGURE 2

Customize EndNote. (A) Name display fields in preferences. (B) Create Smart Groups. Smart Groups automatically sort publications that have been tagged. Smart Groups can also be made for each PI.

and core name for potential (i.e., unacknowledged) core use, as well as properly acknowledged core use (Fig. 3A and B). The potential and confirmed publications can be uploaded to EndNote Web, where the core directors can access them at any time with an internet connection to confirm or deny potential publications. When publications are identified that are not appropriately acknowledged, we notify the PIs and users.

## DISCUSSION

The 2011 Core Facility Benchmarking Study (iLab Solutions, Cambridge, MA, USA) concluded that 57% of the cores surveyed do not know when they are referenced in a paper, presentation, or poster.<sup>12</sup> This is mainly attributed to a lack of tools and policies. Accurately tracking core-generated data in publications, posters, and other presentations is critical for the justification of institutional financial support to obtain further

## C. Import the .txt. file of results and import full text PDF

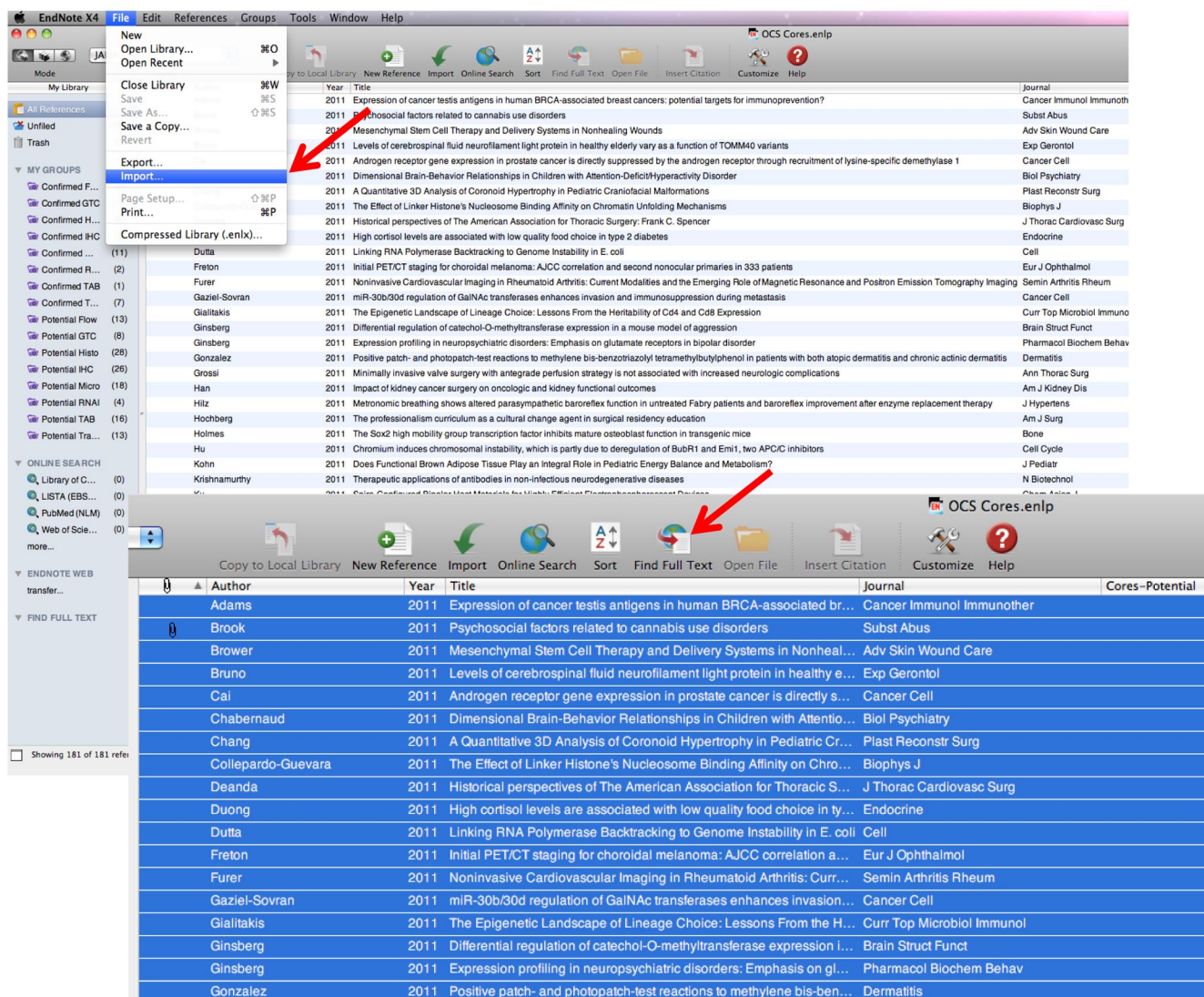


FIGURE 2—(continued)

(C) Import the .txt file of results and import full text Portable Document Format (PDF).

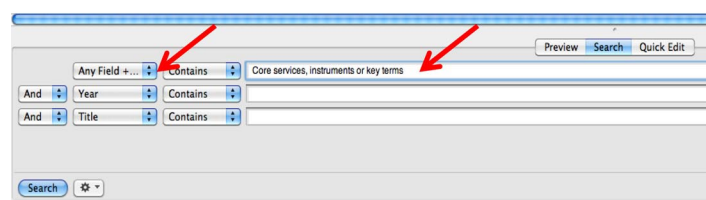
grant funding and for programmatic grant renewals. For example, the first three requirements for shared resources in the National Cancer Institute's Cancer Center Support Grant guidelines (<http://cancercenters.cancer.gov/documents/CCSG-Guidelines508C.pdf>) are: the extent to which the shared resource provides services to multiple investigators in the center, the extent to which the resource is strategically important to the science of the center, and the quality of the science the resource supports. These data can only be provided and supported by appropriate citation of core-generated data and the accurate collection of these citations.

The Office of Collaborative Science (OCS), an administrative office overseeing the cores at New York University Langone Medical Center (New York, NY, USA), uses several methods to encourage compliance with the OCS

Acknowledgment and Authorship policy. Core users must sign an acknowledgment and authorship form at the start of each project; OCS provides web-accessible template language on each core website that specifies the grant numbers to be acknowledged and keeps a centrally administered, semiautomated cores publication database.

With the use of a free web-based service—PubCrawler—we have semiautomated the collection of potential core-user publications that are imported into the reference-management software, EndNote X4. The PubCrawler results are periodically validated by manual PubMed searches. The publication's PDF files are subsequently searched for keywords (core instruments, name of core, etc.) in the EndNote X4 database and annotated for potential and confirmed core use. We use the collaborative web-based

## A. Search for Key terms; instruments, services, data type, core name



## B. Tag the Publication record in the appropriate field, they will automatically sort into the "Smart Group" you created

Author	Year	Title	Journal	Cores-Potential	Confirmed
Jimenez-Baranda	2011	Oligonucleotide Motifs That Disappear during the Evolution of Infl...	J Virol	FLOW	
Kefauver	2011	Transcriptional Remodeling of Ion Channel Subunits by Flow Adap...	J Vasc Res		GTC
Kim	2008	Lrp4 is a receptor for Agrin and forms a complex with MuSK	Cell	Transgenic, Micro, Histo, Flow	
Kim	2010	Two-photon laser scanning microscopy imaging of intact spinal cor...	Journal of immunological methods	Micro, HISTO, Trans...	GTC
Lai	2011	Distinct Inflammatory Signals Have Physiologically Divergent Effect...	Am J Transplant		GTC
Lee	2010	Oncogenic KRas Suppresses Inflammation-Associated Senescenc...	Cancer Cell	Tab, IHC, Histo	
Lee	2010	The largest group of superficial neocortical GABAergic interneuron...	J Neurosci	IHC, HISTO	
Lee	2011	Aurora A is a repressed effector target of the chromatin remodeling ...	Cancer Res	HISTO, IHC	

FIGURE 3

(A) Search for key terms: instruments, services, data type, core name. (B) Tag the publication record in the appropriate field; they will automatically sort into the Smart Group you created.

feature of EndNote to provide the core directors with a list of publications that are confirmed or denied by the core directors on a quarterly basis. The results are then annotated in the permanent, centrally stored OCS EndNote database.

Our semiautomated method relieves some of the burden of tracking core-contributed publications from the core directors but still requires heavy administrative input: validating the PubCrawler results, tagging the publications for potential and confirmed use, obtaining confirmation from the core directors, and annotating the permanent database to reflect the confirmation or denial of core-contributed publications. We have used this method successfully for several grant renewals and are collecting data to demonstrate the effect of our core-user education program. Our goal is to further automate this process through deployment of a LIMS.

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